Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An active control device for improving air flow characteristics in a vicinity of an airfoil, the airfoil having an outer aerodynamic surface and an interior volume, the airfoil having a chord of predetermined length, the aerodynamic surface comprising a leading edge and a trailing edge, the active control device comprising:

a plurality of apertures disposed on the outer aerodynamic surface, said plurality of apertures communicating the outer aerodynamic surface to the interior volume and all of said plurality of apertures being disposed closer to said trailing edge than to said leading edge;

a chamber disposed within the interior volume, said chamber defining a volume in fluid communication with said apertures;

a plurality of diaphragms defining a wall of said chamber, said plurality of diaphragms each being movable between a first position and a second position, wherein movement of each of said diaphragms from said first position to said second position pushes air present in the interior volume through said plurality of apertures and out of the interior volume, and wherein movement of each of said diaphragms from said second position to said first position draws air through said plurality of apertures and into the interior volume; and

a controller operatively coupled to said plurality of diaphragms, said controller controlling movement of said plurality of diaphragms;

wherein a total number of said plurality of apertures corresponds to a total number of said plurality of diaphragms, and each of said plurality of diaphragms pushes and draws air through a corresponding one of said plurality of apertures.

2-6. (Canceled)

7. (Previously Amended) An active control device in accordance with claim 1, comprising:

first and second sensors operatively coupled to said controller, said first and second sensors disposed on the aerodynamic surface, said first and second sensors measuring a flow characteristic of air proximal to said first and second sensors.

8. (Original) An active control device in accordance with claim 7, wherein:

said controller regulates an oscillation frequency of at least one of said plurality of diaphragms in response to said flow characteristic of air measured by said first and second sensors.

9. (Original) An active control device in accordance with claim 7, wherein:

said controller regulates an oscillation amplitude of at least one of said plurality of diaphragms in response to said flow characteristic of air measured by said first and second sensors.

10. (Original) A system in accordance with claim 7, wherein:

said first and second sensors comprise at least one pressure transducer.

11. (Canceled)

12. (Currently Amended) An active control device for improving air flow characteristics in a vicinity of an airfoil, the airfoil having an outer aerodynamic surface and an interior volume, the airfoil having a chord of predetermined length, the aerodynamic surface comprising a leading edge and a trailing edge, the active control device comprising:

at least one aperture disposed on the outer aerodynamic surface, said at least one aperture communicating the outer aerodynamic surface to the interior volume;

a chamber disposed within the interior volume, said chamber defining a volume in fluid communication with said aperture; and

at least one diaphragm defining a wall of said chamber, said at least one diaphragm being movable between a first position and a second position, wherein movement of said at least one diaphragm from said first position to said second position pushes air present in the interior volume through said at least one aperture and out of the interior volume, and wherein movement of said at least one diaphragm from said second position to said first position draws air through said at least one aperture and into the interior volume;

wherein said at least one aperture is disposed along the aerodynamic surface a distance of ~~less~~ not greater than 8 percent of the chord length from the trailing edge, and no apertures are disposed along any other portion of the chord length.

13. (Original) An active control device in accordance with claim 7, wherein:

said first and second sensors are disposed proximal the leading edge.

14. - 19. (Canceled)

20. (Original) A method of neutralizing perturbations caused by non-uniform flow of a fluid stream over an airfoil having a leading edge and a trailing edge, the method comprising:

sensing a variable pressure associated with the fluid stream proximal the leading edge of the airfoil;

computing a perturbation frequency associated with said variable pressure; and

actuating an array of oscillating jets disposed proximal the trailing edge of said airfoil to cause said oscillating jets to oscillate at an actuating frequency, said actuating frequency being a function of said perturbation frequency.

21. (Original) The method of claim 20, further comprising:

computing a dominant frequency associated with said variable pressure and causing said oscillating jets to oscillate at an actuating frequency substantially equal to said dominant frequency.

22. (Original) The method of claim 20, further comprising:

sensing a variable differential pressure associated with said fluid stream; and

actuating one of a first and second array of oscillating jets disposed on an upper and lower surface of said airfoil in response to the arithmetic sign of said differential pressure.

23. (New) An active control device for improving air flow characteristics in a vicinity of an airfoil, the airfoil having an outer aerodynamic surface and an interior volume, the airfoil having a chord of predetermined length, the aerodynamic surface comprising a leading edge and a trailing edge, the active control device comprising:

a plurality of apertures disposed on the outer aerodynamic surface, said plurality of apertures communicating the outer aerodynamic surface to the interior volume;

a chamber disposed within the interior volume, said chamber defining a volume in fluid communication with said apertures;

a plurality of diaphragms defining a wall of said chamber, said plurality of diaphragms each being movable between a first position and a second position, wherein movement of each of said diaphragms from said first position to said second position pushes air present in the interior volume through said plurality of apertures and out of the interior volume, and wherein movement of each of said diaphragms from said second position to said first position draws air through said plurality of apertures and into the interior volume;

a controller operatively coupled to said plurality of diaphragms, said controller controlling movement of said plurality of diaphragms; and

first and second sensors operatively coupled to said controller, said first and second sensors disposed on the aerodynamic surface, said first and second sensors measuring a flow characteristic of air proximal to said first and second sensors;

said controller regulating an oscillation amplitude of at least one of said plurality of diaphragms in response to said flow characteristic of air measured by said first and second sensors;

wherein a total number of said plurality of apertures corresponds to a total number of said plurality of diaphragms, and each of said plurality of diaphragms pushes and draws air through a corresponding one of said plurality of apertures.